Dune Hazard Assessment Tool (DHAT) Tutorial

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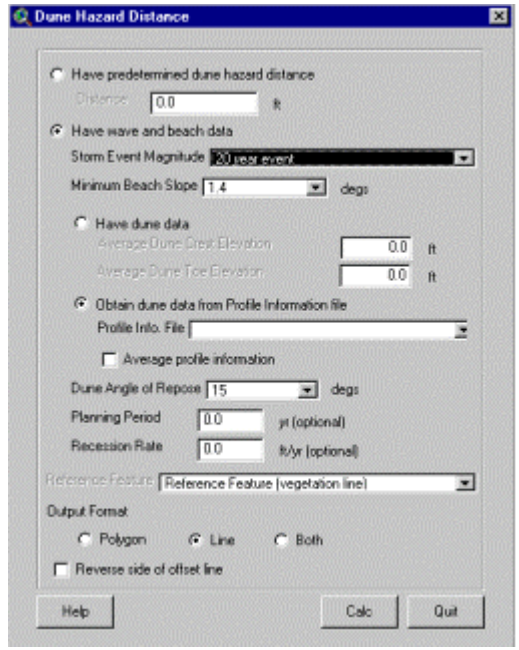
Introduction and Project File Selection

Introduction

This tutorial contains detailed instructions on how to use the Dune Hazard Assessment Tool, which is an ArcView® extension developed at the NOAA Coastal Services Center for this CD-ROM. The parameters contained within it are specific to a small section of the Oregon coast. Results outside the area of the ArcView project are not valid. In order to utilize the full functionality of the DHAT extension, Spatial Analyst is required. The extension will work without Spatial Analyst; however, the functionality contained within the "PInfo" option will be disabled.

DHAT was based on an extension originally developed by Jeff Foisy of Oregon State University at Corvallis.



Selecting the appropriate project file

Depending on your version of ArcView and whether you have Spatial Analyst loaded on your machine, you will want to load a different ArcView project file to use the Dune Hazard Assessment Tool. The table below should help you decide.

	ArcView 3.0	ArcView 3.1 or 3.2
No Spatial Analyst	southbeach30.apr	southbeach31.apr
Spatial Analyst	southbeach30sa.apr	southbeach31sa.apr

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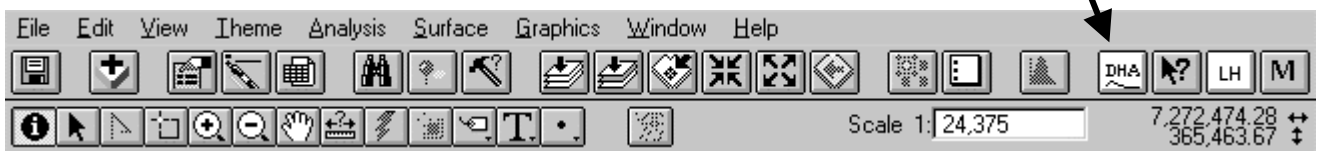
Starting DHAT

The Dune Hazard Assessment Tool (DHAT) extension will automatically be loaded with the ArcView LIDAR beach mapping project file provided on this CD-ROM.

After opening a project with the DHAT extension, open a new view. You will see that the button has been added to the standard set of icons along the top row.

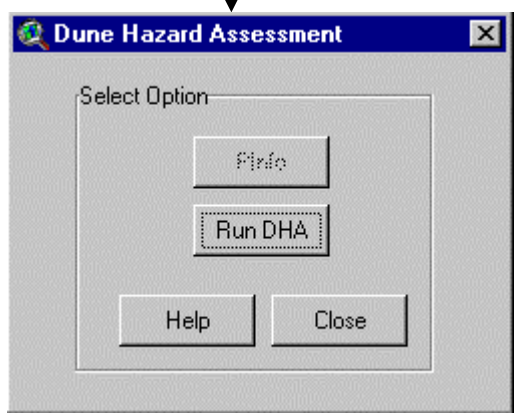
Click the button to start the modeler. You will be presented with a window giving options for DHAT as shown in the next section.

Click here



If you have Spatial Analyst, the dialog that pops up will look like this.

If you **do not** have Spatial Analyst, the dialog that pops up will look like this.

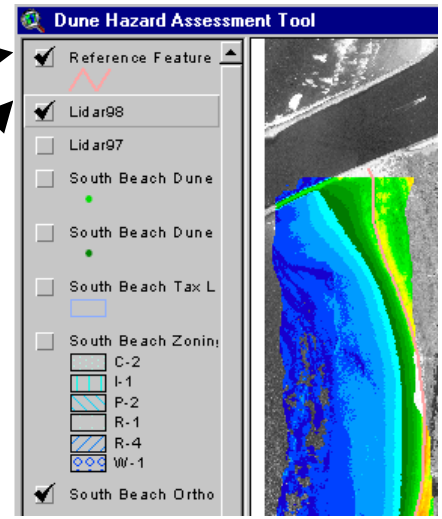


Dune Hazard Assessment Tool (DHAT) Tutorial

Creating a Profile Information File (Spatial Analyst only)

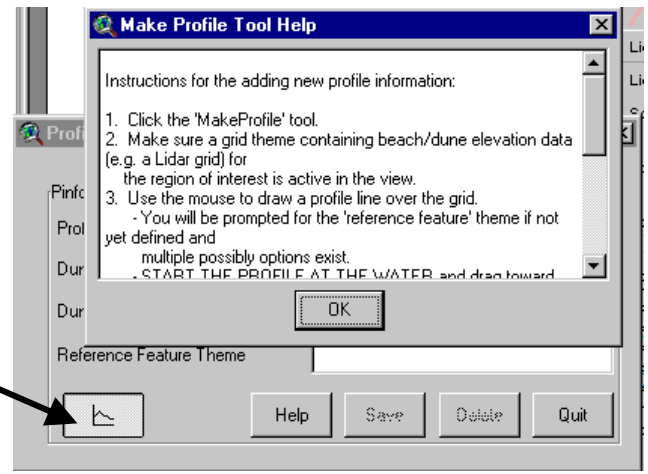
Adding a Profile

- Activate the theme named **Reference Feature**.



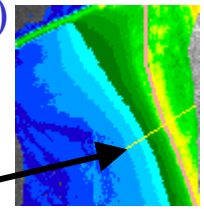
- Make a Digital Elevation Model (DEM) grid theme (**Lidar97** or **Lidar98**) active in the Dune Hazard Assessment Tool view.

- Click the profile tool. A help window will display with instructions for using the tool. Click the **OK** button to close the help window.



Dune Hazard Assessment Tool (DHAT) Tutorial

Creating a Profile Information File (Spatial Analyst only)

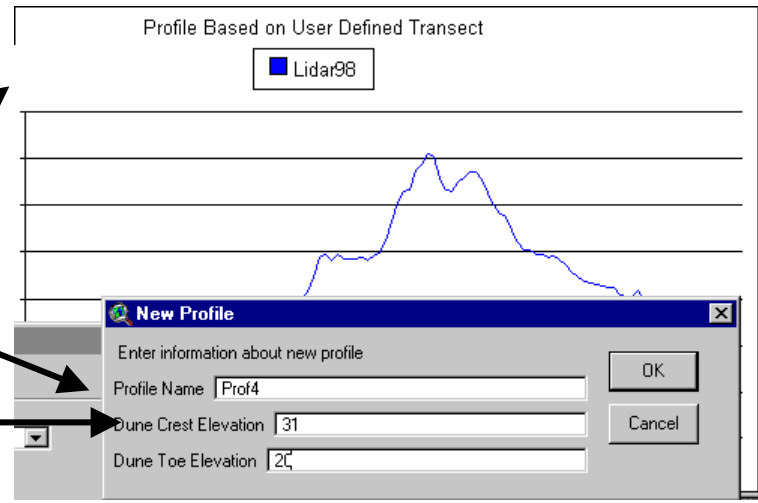


Adding a Profile (continued)

- Use the left mouse button to draw a line indicating the location of a shore-normal profile. Start the profile on the ocean side and drag toward the land making sure that the profile crosses the reference feature. An error message will display if the profile does not intersect the reference feature. Drawing the profile from the land to the water will result in a dune hazard zone/line on the wrong side (ocean side) of the reference feature. When defining the first profile in a file and if multiple possible reference feature themes exist in the active view, a window will display presenting a list of possible reference feature themes. Select the appropriate item from the list and click **OK**.

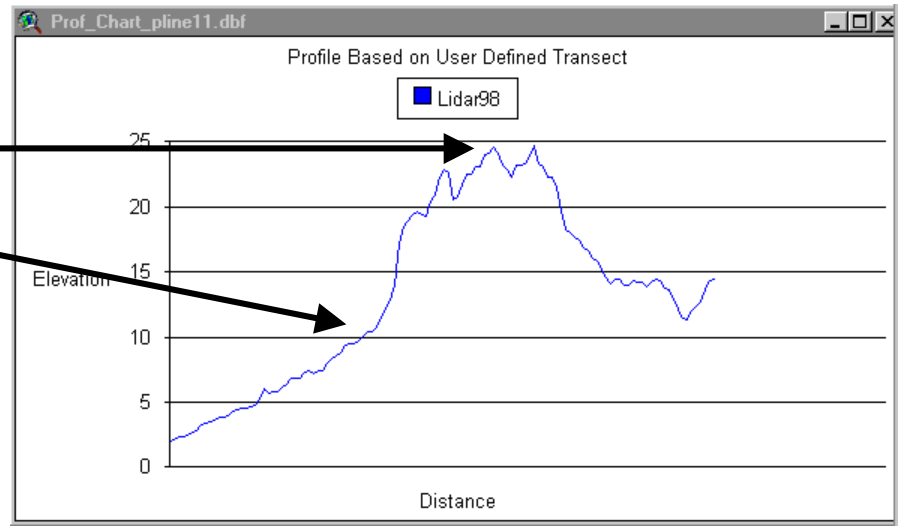
- After the profile line is drawn, the extension will create a table containing elevation values from the DEM at fixed points along the profile line. A chart will display showing the beach/dune profile, and a window will prompt for dune crest and toe elevations. (This may take a few minutes to appear.)

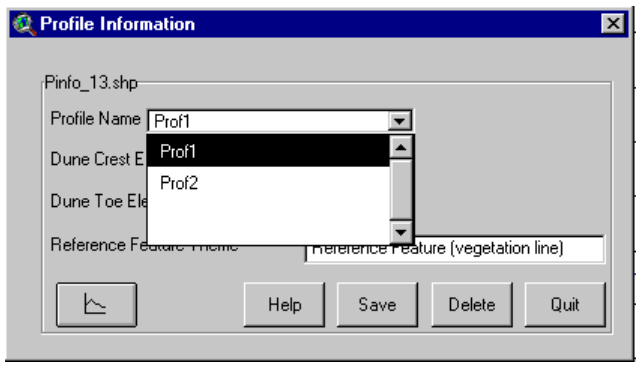
- It may not be possible to see the toe and or the crest of the dune, as the New Profile window can sometimes obscure the chart. If this happens, enter temporary values for the elevations and click **OK**. You will have a chance to edit these values.

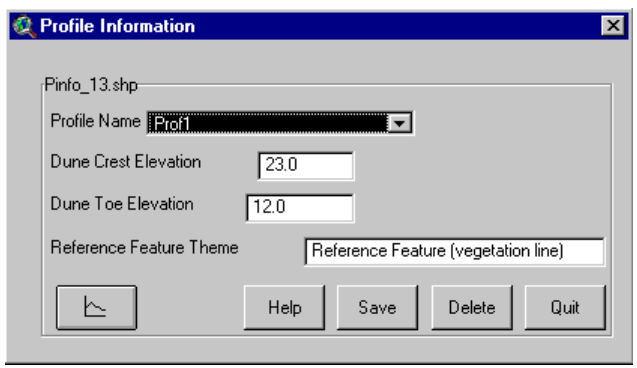


Dune Hazard Assessment Tool (DHAT) Tutorial

Editing or Deleting a Profile Information File







- Select a **Profile Name** to be edited from the drop-down list. The associated profile will be displayed in the chart window.

- Update the dune crest or toe elevation values. Click the **Save** button to commit the changes.

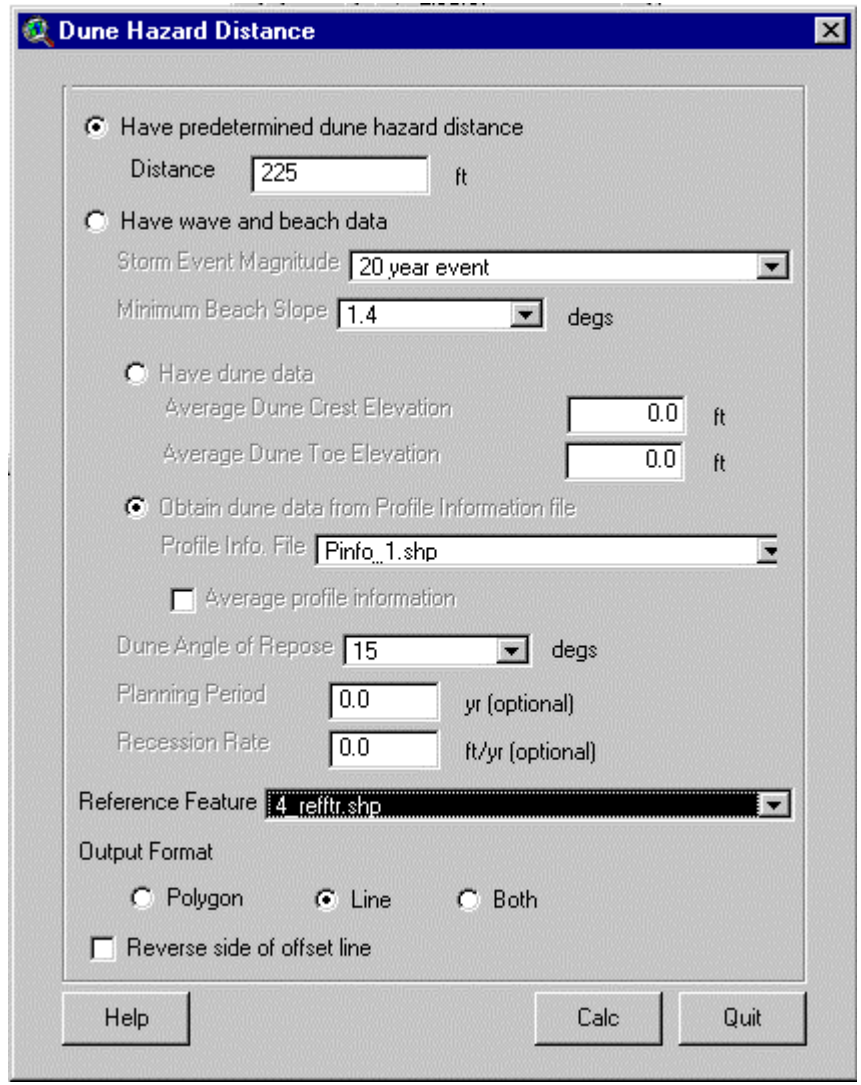
- To delete a profile, select the **Profile Name** as above and click the **Delete** button.

Dune Hazard Assessment Tool (DHAT) Tutorial

Running DHAT with Known Dune Hazard Distance

- Click the **Have predetermined dune hazard distance** option.
- Enter the dune hazard **Distance** (in feet).
- Select the appropriate **Reference Feature** from the drop-down list.
- Click the desired **Output Format** option.
- Click the **Calc** button.
- Depending on the **Output Format** option selected, the system will prompt for the output file name for either the polygon or polyline, or both.

If the dune hazard zone/line appears on the ocean side of the reference feature, check **Reverse side of offset line** and rerun the model by clicking the **Calc** button.



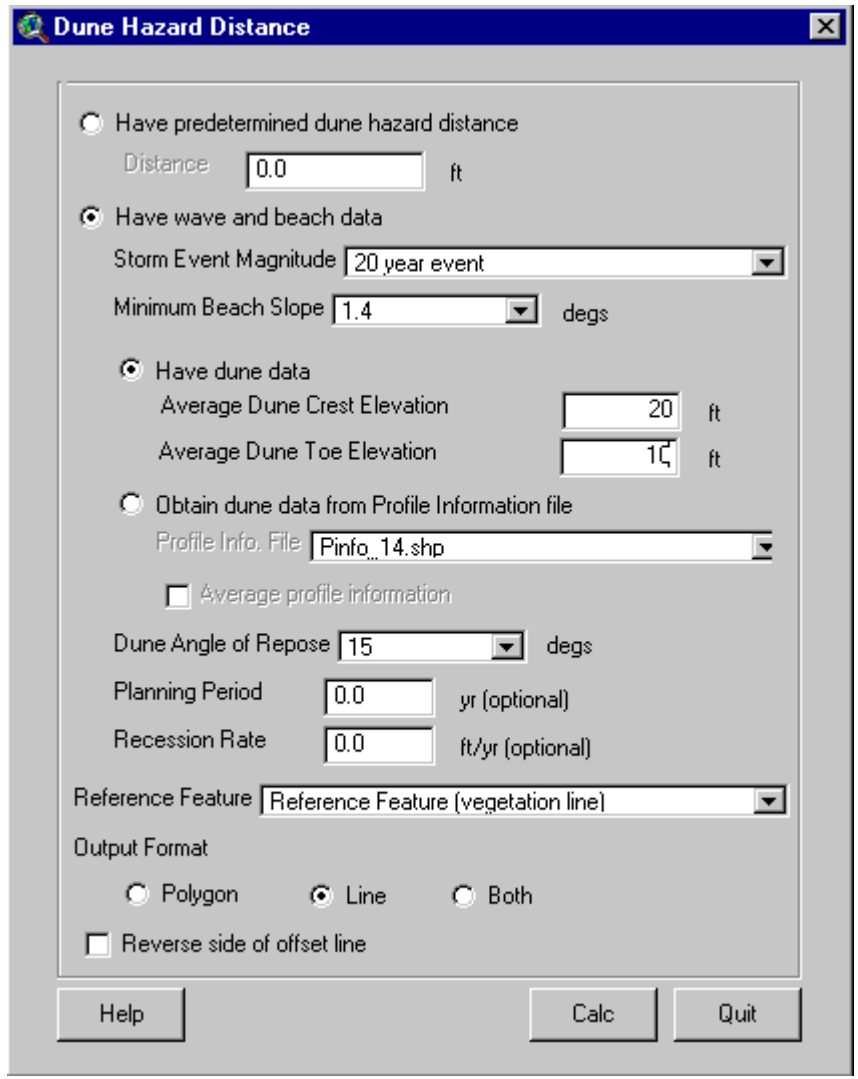
Dune Hazard Assessment Tool (DHAT) Tutorial

Running DHAT with Known Average Dune Crest and Toe Elevations

- Click **Have wave and beach data** option.
- Click **Have dune data**.
- Enter values (in feet) for the average dune crest and toe elevation.
- Select the appropriate **Reference Feature** from the drop-down list.
- Select the appropriate **Dune Angle of Repose** from the drop-down list.
- Enter optional information: **Planning Period** and **Recession Rate**.
- Click the desired **Output Format** option.
- Click the **Calc** button.

Depending on the **Output Format** option selected, the system will prompt for the output file name for either the polygon or polyline, or both.

If the dune hazard zone/line appears on the ocean side of the reference feature, click **Reverse side of offset line** and rerun the model by clicking the **Calc** button.



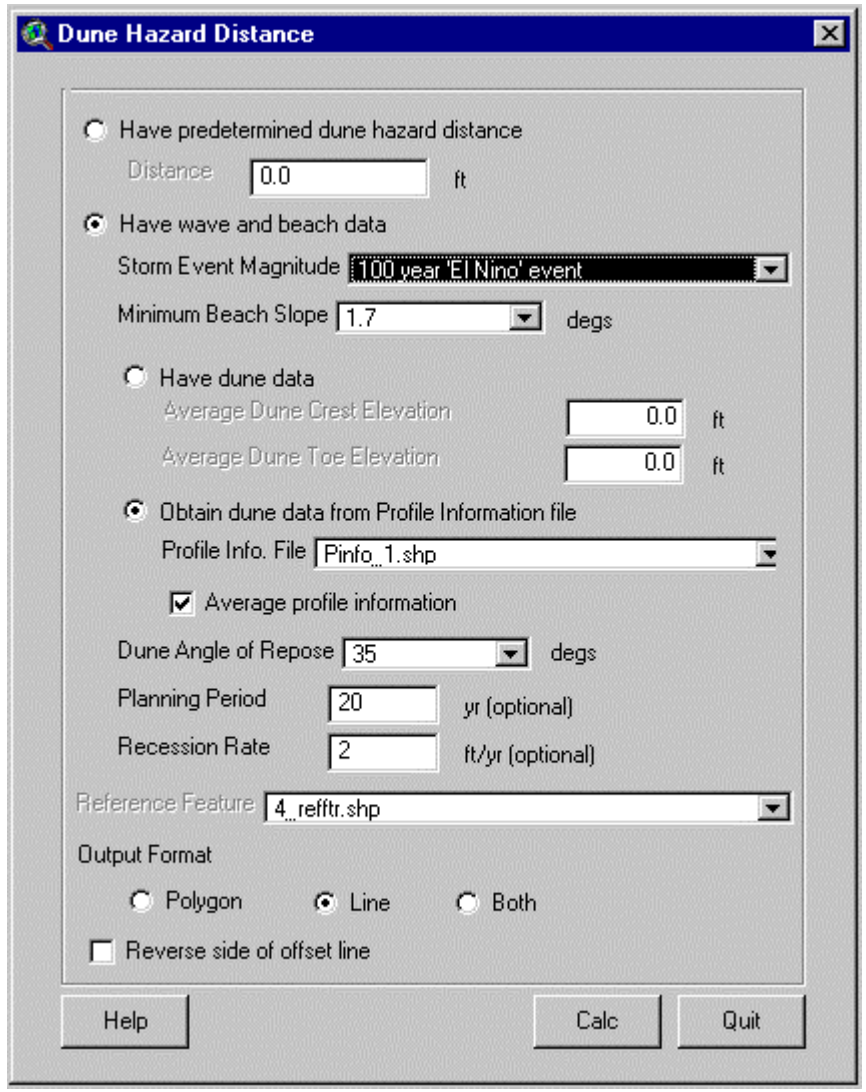
Dune Hazard Assessment Tool (DHAT) Tutorial

Running DHAT with Average Dune Crest and Toe Elevations from Profile Information File

- Click **Have wave and beach data** option.
- Click **Obtain dune data from Profile Information file** option.
- Click **Profile Information File**.
- Click the **Average profile information** checkbox.
- Select the appropriate **Dune Angle of Repose** from the list.
- Enter optional information: **Planning Period** and **Recession Rate**.
- Click the desired **Output Format** option.
- Click the **Calc** button.

Depending on the **Output Format** option selected, the system will prompt for the output file name for either the polygon or polyline, or both.

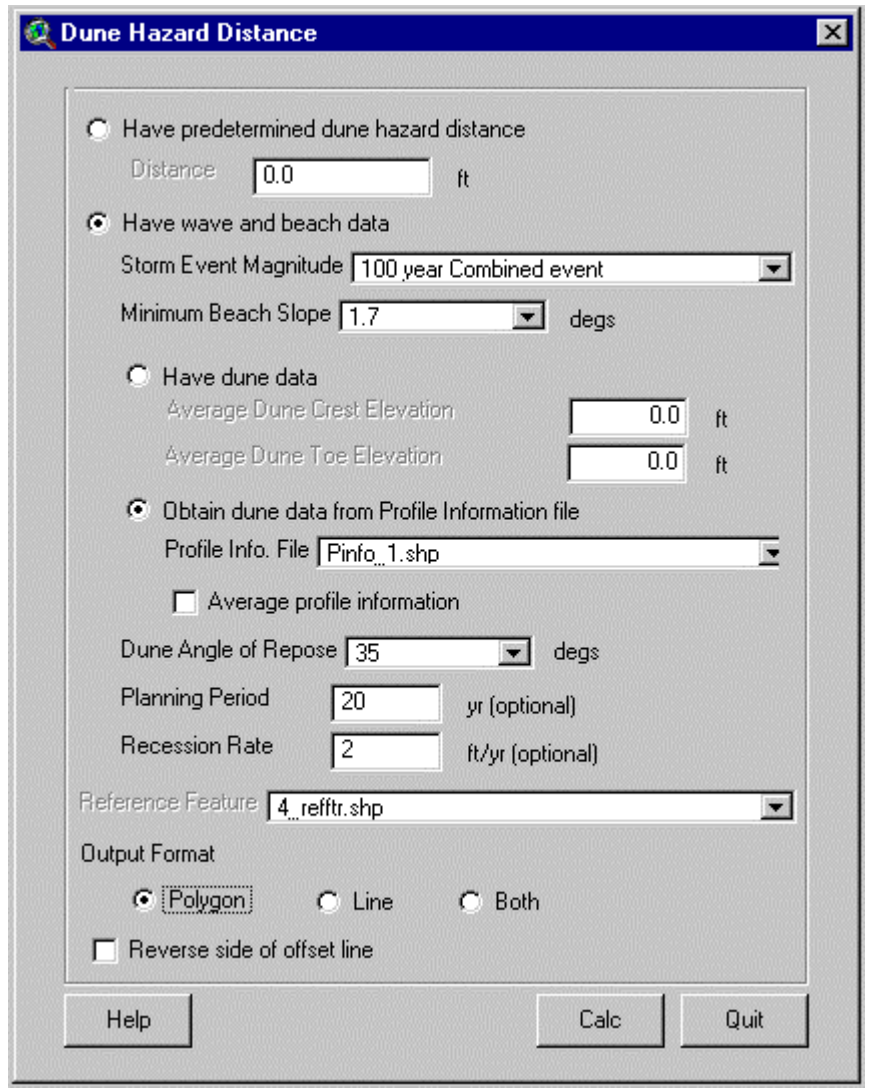
If the dune hazard zone/line appears on the ocean side of the reference feature, check **Reverse side of offset line** and rerun the model by clicking the **Calc** button.



Running DHAT Using All Dune Elevations from Profile Information File

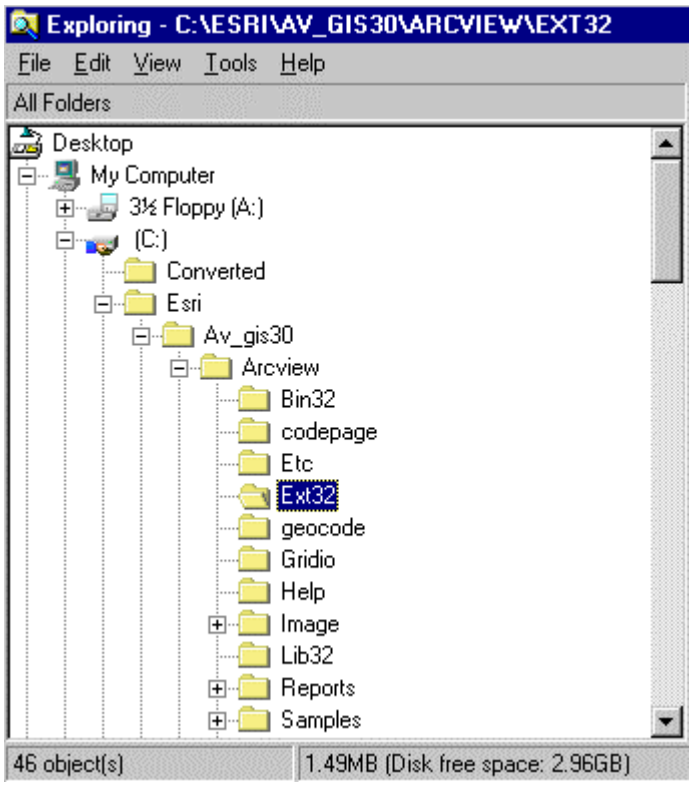
- Click **Have wave and beach data** option.
- Click **Obtain dune data from Profile Information file** option.
- Select **Profile Information File** from the drop-down list.
- Select the appropriate **Dune Angle of Repose** from the list.
- Enter optional information: **Planning Period** and **Recession Rate**.
- Click the desired **Output Format** option.
- Click the **Calc** button.

Depending on the **Output Format** option selected, the systemwill prompt for the output file name for either the polygon or polyline, or both.

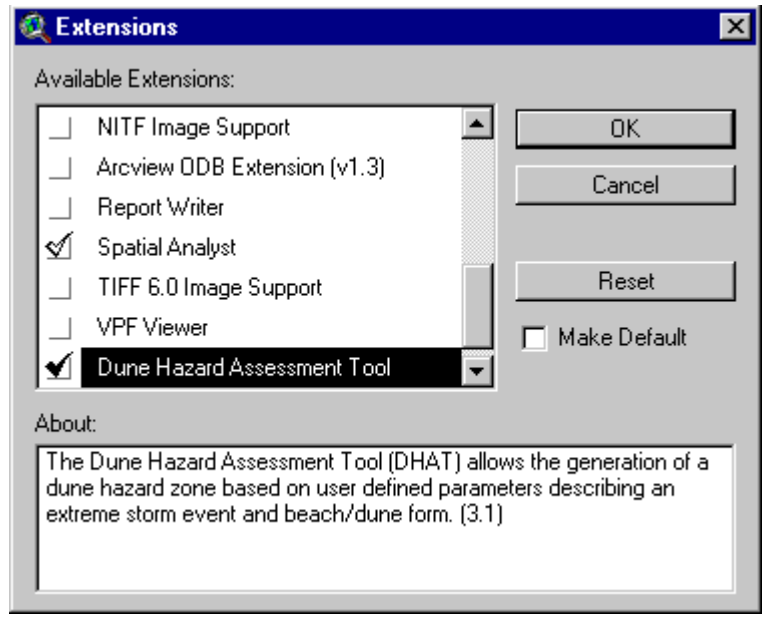


Dune Hazard Assessment Tool (DHAT) Tutorial

Adding DHAT to other ArcView projects



To add the Dune Hazard Assessment (DHA) Modeler extension to your own project file, you must move the file, dha.avx, containing the extension from the "exten" folder on this CD-ROM into the Environmental Systems Research Institute (ESRI®) extension folder on your computer's hard drive.



To load this extension manually, open ArcView, go to the Project window and select **Extensions** from the **File** menu. This gives you a dialog box that allows you to choose which extensions you would like to load. Choose **Dune Hazard Assessment Tool** by checking the box next to it. Click **OK**. The DHAT extension will be added to the project and a new button will appear on the view's button bar.